REMARKS/ARGUMENTS

Claims 1-37 are now in the application. Claims 1 and 18 are amended. Claims 34 -37 are new. Claims 1, 18 and 34 are independent claims.

Claim Rejection under 35 U.S.C. 102

The Office Action rejects claims 1,2, 4, 6-9, 11-14, 16-19, 21, 24-27, 29-31 and 33 under 35 U.S.C. 102(b) as being anticipated by Leung et al. (U.S. Patent 5,444,697).

As previously argued, applicants claimed invention enables a low cost digital radio receiver to be constructed in which the main processor of a PC (or other kind of personal computing device) is used to perform the computationally intensive demodulation steps. A 'front-end' for the PC can then be constructed which handles incoming RF signals but performs no demodulation at all. See for example:

> "In a broad sense, the invention is designed to exploit the extremely fast main processor integrated circuits (ICs) and large memory capacity available within PCDs, particularly IBM-PC compatible machines. The processor chips fitted to such systems are often capable of outperformning dedicated digital signal processing (DSP) ICs and have plenty of spare computing capacity ..." Page 10, 3rd para.

This approach is potentially far cheaper than prior art approaches, in which a dedicated (and relatively costly) DSP chip isdeployed to perform the computationally intensive demodulation steps. Leung exemplifies this prior art approach since it explicitly teaches a dedicated DSP to perform modulation (see Figure 1 items 21 – 24) and demodulation (Figure 1 items 60 – 65).

In Leung, the QAM steps (11 and 72) that do take place in a PC are not modulation/demodulation per se, but merely preparatory encoding and decoding steps, as Figure 1 makes explicit. The actual modulation and demodulation steps take place in the dedicated DSPs, as the text makes clear: "In general modulation and demodulation can be efficiently done using Inverse Fast Fourier Transform (IFFT) and Fast Fourier Transform (FFT) algorithms respectively" column 6 lines 54 – 57. "The IFFT is conveniently carried out by transmitter DSP 20 and is indicated by step 21." Column 7 line 25 – 26. "The

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received data is then processed in receiver DSP 60 and receiver host computer 70 by generally reversing the steps performed in transmitter DSP 20 ..." column 8 lines 44 – 46.

In order to further clarify the difference between applicant's claimed invention and the cited prior art, independent claims 1 and 18 have been further modified to recite:

the main processor being programmed to perform all required demodulation of the digitized modulated signal to obviate the need for a DSP.

all required modulation to generate the digital modulated signal having been performed by the main processor in the personal computing device to obviate the need for a DSP,

Even if Leung's teaching on QAM encoding is taken to be modulation, which the applicant argue it is not, Leung does uses an FFT and IFFT on the DSP for modulation and demodulation. Leung doe not, therefore, teach performing all required demodulation and modulation on the main processor of the PC. Leung does not, therefore, teach applicant's invention of claim 1 or 18.

Applicant, therefore, requests that the amendment be entered, the rejection be withdrawn and that claims 1 and 18 be allowed.

As claims 2, 4, 6-9, 11-14, 16-17, 19, 21, 24-27, 29-31 and 33 now depend from, and include all the limitations of an allowable claim, applicant requests that they be allowed.

Claim Rejection Under 35 U.S.C. 103

The Office Action rejects claims 3 and 20 under 35 U.S.C. 103(a) as obvious over Leung in view of Hammer et al. (U.S. Patent 4,396,978).

The Office Action rejects claims 5, 22 and 23 under 35 U.S.C. 103(a) as obvious over Leung in view of Sugita et al. (U.S. Patent 5,608,764).

The Office Action rejects claims 10 and 28 under 35 U.S.C. 103(a) as obvious over Leung in view of Brajal et al. (U.S. Patent 5,548,582).

The Office Action rejects claims 15 and 32 under 35 U.S.C. 103(a) as obvious over Leung in view of a person of ordinary skill in the art.

As claims 3, 5, 10, 15, 20, 22, 23, 28 and 32 depend from, and include all the limitations, of allowable base claims, applicant requests that this rejection be withdrawn and claims 3, 5, 10, 15, 20, 22, 23, 28 and 32 be allowed.

New claims

In order to more clearly distinguish applicant's claimed invention from Leung, applicant has added new claims 34 -36. Support for these new claims is found in the application as filed on, for instance, pages 9 and 15.

Leung does not teach:

software means, operating on said main processor of said personal computing device, comprising instructions for performing all aspects of handling said digitised, modulated intermediate-frequency signal in order to demodulate said digitised, modulated intermediate-frequency signal.

as claimed in applicant's new claim 34.

Applicant, therefore, requests that new claim 34 be entered and allowed.

As new claims 35 – 37 depend from, and include all the limitations of, allowable claim 34, applicant requests that they be allowed.

Summary

Therefore in view of the foregoing amendments and remarks, applicant respectfully requests entry of the amendments, favorable reconsideration of the application, withdrawal of all rejections and objections and that claims 1-37 be allowed at an early date and the patent allowed to issue.

Respectfully submitted,

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